

### **REMARKS**

In the Office Action, the Examiner noted that claims 1-14 are pending in the application and that claims 1-14 stand rejected. By this response, claims 1-5, 7, 9, 11 and 13-14 have been amended to more clearly define the invention of the Applicant and to correct for informalities pointed out by the Examiner.

In view of the amendments presented above and the following discussion, the Applicant respectfully submits that none of the claims now presently in the application are rendered obvious under the provisions of 35 U.S.C. § 103. In addition, the Applicants submit that all of the claims herein comply with the provisions of 35 U.S.C. § 101. Thus, the Applicant believes that all of these claims are now in allowable form.

### **Objections**

#### **A. Claims**

The Examiner objected to the Applicant's claims 9 and 13-14 because the word "program" is misspelled.

In response the Applicant has amended claims 9, 13 and 14 to correct the spelling of the word "program". Having done so, the Applicant respectfully requests that the Examiner's objection to the Applicant's claims 9, 13 and 14 be withdrawn.

### **Rejections**

#### **A. 35 U.S.C. § 101**

The Examiner rejected the Applicant's claims 1-8 and 10-11 under 35 U.S.C. § 101 alleging that the Applicant's claims are directed to non-statutory subject matter. The rejection is respectfully traversed.

As announced by the Court of Appeals for the Federal Circuit in the recently decided case *In Re Bilski*, 545 F. 3d 943, 953 (Fed Cir. 2008), the appropriate test for determining compliance with 35 U.S.C. §101 is the "machine or transformation" test as elucidated by the U.S. Supreme Court in *Benson*, 409 U.S. 70. In particular, to be eligible for a patent under 35 U.S.C. §101, a process must be tied to a particular machine or transform a particular article to a different state or thing.

The Applicants maintain that claims 1-8 and 10-11 clearly satisfy at least the "transformation" prong of the machine or transformation test as set forth in *Bilsky* because the process transforms an image into a different state or thing, namely into a

new image on which a geometric model is superposed. The Examiner should appreciate that the transformation of the image recited in claims 1 and 11 does not constitute a mental process that lacks significant physical steps. As part of the Applicants' claimed process, at least one parameter must be established in accordance with the pixel of the image. As recited in the Applicants' claims 1 and 11, the at least one parameter can comprise a picture reference binary matrix. Establishing a parameter such as picture reference binary matrix cannot simply be done as a mental process. Rather, a physical image must be obtained by a camera and a geometric model compared to the image. On this basis, the Examiner cannot simply reject applicants' claims as lacking significant physical steps.

In addition, the Applicants' claimed method as recited in claim 1 is directed to a practical application of a fundamental principle, namely the registration of a geometrical model onto an image. Since the Applicants' geometrical model is superposed with image to locate an object (i.e., tennis court), the Applicants' claims are thus directed to a visual depiction of a physical object, constituting a "safe harbor" as established by the Federal Circuit in *Bilski* (545 F. 3d 943 at 963).

Even further, the Applicants submit that the Applicants' claims are tied to a particular machine. More specifically, claim 1 recites:

"An automatic resetting method using electronic means intended for a geometric model of a scene over a picture of the scene, the model and the picture of the scene being stored in the memory of an electronic device in the form of pixel matrices, the scene including fixed references with respect to the remainder of the scene, wherein the references can be detected within the matrices, the picture being taken by a camera arranged in a given zone with respect to the ground in a location of the zone and according to a shot angle determined relative to the scene, the method comprising:

comparing, **via the electronic means**, the picture with the model having been adjusted in perspective by homography for superimposition of the references,

wherein **the electronic device calculates** a fine homography function,  $H_1$ , for resetting into at least three main phases:" (emphasis added).

The Applicants submits that for at least the reasons recited above, the Applicants' claims 1-8 and 10-11, as written fully comply with 35 U.S.C. §101. The Applicants respectfully request withdrawal of that rejection.

**B. 35 U.S.C. § 103**

The Examiner rejected the Applicants' claims 1-2 and 7-14 under 35 U.S.C. § 103(a) as being unpatentable over Rosser et al. (US Patent No. 6,100,925, hereinafter "Rosser") and further in view of Rasker (US Patent No. 6,733,138). The rejection is respectfully traversed.

Independent claims 1 and 11 have been amended to include claim language directed to a rough resetting phase.

In contrast to the invention of the Applicants, Rosser teaches a live video insertion system that allows insertion of static or dynamic images into a live video broadcast. However, Rosser does not disclose nor suggest the five steps of the rough resetting phase as claimed in the Applicants' claim 1.

Raskar, however, has been cited by the Examiner to bridge the substantial gap between the teachings of Rosser and the invention of the Applicants. The Applicants, however, submit that Raskar absolutely fails to bridge that gap. That is, Raskar discloses an automated method for registering the projector array to produce a seamless single rectangular image. However, the Applicants submit that Raskar does not disclose nor suggest the five steps of the rough resetting phase as claimed in the Applicants' amended claim 1. That is, the Applicants submit that Raskar fails to cure the deficiencies of Rosser and that the cited combination of Rosser and/or Raskar, taken singly or together, fails to disclose or suggest at least a

"second rough resetting phase including the steps of:

- applying an extraction process to the picture enabling, according to detection criteria, to detect in the picture matrix of the pixels which can represent references of the scene and to form a first picture reference binary matrix,  $M_{rh}$ , including horizontal contour points and a second picture reference binary matrix,  $M_{rv}$ , including vertical contour points,
- for each horizontal reference binary matrix  $M_{rh}$ , respectively a vertical reference binary matrix  $M_{rv}$ , a horizontal reference distance matrix  $M_{dh}$ , respectively a vertical reference distance matrix  $M_{dv}$ , including for each element of the matrix the distance value with respect to the closest reference according to the vertical line, respectively the horizontal line is calculated,
- applying all the reference lines of the model to the average homographic function  $H_m$  in order to produce a binary average adjusted matrix  $M_{am}$  which is compared with the vertical  $M_{dv}$ , and respective horizontal  $M_{dh}$  reference distance matrices, for pixel matching purposes, and calculating a homography function  $H_{opt}$  by

regression with minimization of the medial of the square of the distance between pairs of matched pixels,  
- identifying the pairs of pixels corresponding to non-aberrant matches,

- adjusting the homography function,  $H_{opt}$ , by least a square regression calculation over all the non-aberrant pixel pairs in order to produce the rough homography  $H_g$ "

as taught and claimed by at least the Applicants' amended claim 1. As such, the Applicants submit that Claim 1 is thus novel and non obvious over cited prior art. Claim 11 is also novel and non obvious over cited prior art for the reasons given above. The other claims that depend on claim 1 or claim 11 with further distinguishing features are also novel and non obvious over cited prior art.

That is, the Applicants submit that for at least the reasons recited above, Rosser and Rasker, alone or in any allowable combination, absolutely fail to teach, suggest or anticipate each and every element of the claimed invention, arranged as in at least the Applicants' claim 1. Therefore, the Applicants submit that the Applicants' claim 1 is not rendered obvious by the teachings of Rosser and Rasker, alone or in any allowable combination, and as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Likewise, the Applicants' claim 11 is an independent claim that recites similar relevant technical features as the Applicants' independent claim 1. The Applicants respectfully submit that for at least the same reasons as recited above with reference to the Applicants' amended claim 1, independent claim 11 is also not rendered obvious by the teachings of Rosser and Rasker, alone or in any allowable combination and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Furthermore, dependent claims 2, 7-10 and 12-14 depend directly or indirectly from the Applicants' independent claims 1 and 11 and recite additional features therefor. As such and for at least the reasons recited above, the Applicants submit that dependent claims 2, 7-10 and 12-14 are also not rendered obvious by the teachings of Rosser and Rasker, alone or in any allowable combination. Therefore the Applicants submit that dependent claims 2, 7-10 and 12-14 also fully satisfy the requirements of 35 U.S.C. § 103 and are patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

Conclusion

Thus the Applicants submit that none of the claims, presently in the application, are rendered obvious under the provisions of 35 U.S.C. § 103. In addition, the Applicants submit that all of the claims herein comply with the provisions of 35 U.S.C. § 101. Consequently, the Applicants believe that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion, it is respectfully requested that the Examiner telephone the undersigned.

No fee is believed due. However, if a fee is due, please charge the additional fee to Deposit Account No. 07-0832.

Respectfully submitted,  
Lionel Oisel, et al.

/Jorge Tony Villabon/

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